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Technology Transfer from Los Alamos:

What to know



Richard P. Feynman Center for Innovation

The Feynman Center for innovation **is responsible** for all of the **Laboratory's technology transfer activities.**

The goal of technology transfer is to **leverage federal R&D investments** to promote **U.S. economic competitiveness** and job growth, while **supporting the Laboratory's national security mission objectives.**

FCI authorities and **functions** originate from **federal and state statutes** and **prime contract directives.**



What is technology transfer?



Intellectual property - Protect, utilize & manage LANL's intellectual assets



Partnership agreements - Develop, execute & manage contracts with non-federal entities



Licensing - Enable access to LANL intellectual property to further develop and use



Technology Assistance - Provide LANL expertise to businesses to solve technical challenges



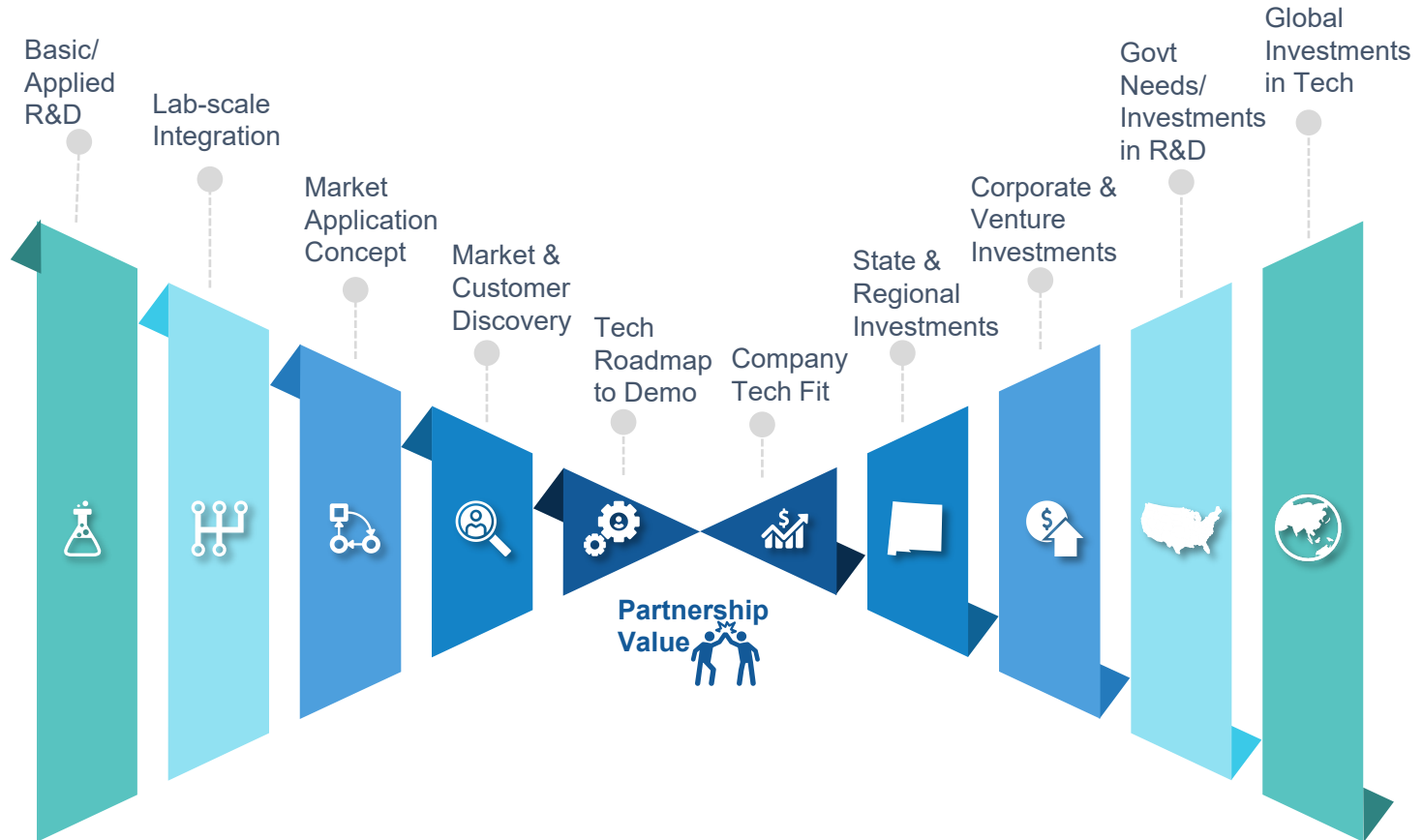
Entrepreneur Training & Development - Educate the next generation of innovators to develop business models around their scientific breakthroughs.



Connecting LANL R&D with Industry

To successfully transition Los Alamos' competitive technologies into the US private sector requires:

- Discovery of external trends, and investments in a shifting technology marketplace that informs the Laboratory of industry alignment with the Lab Agenda and sponsor expectations;
- Attracting greater private sector interest and investment in our technologies that can be integrated into innovative products, processes and services that serve new and established businesses and industries.



Impact



Educating the next generation of innovators to develop business models around their scientific breakthroughs;



Driving new innovation into New Mexico companies working on products that can enhance key design and manufacturing capabilities;



Developing mechanisms for more entrepreneurial activities to maintain or increase spin-outs based on Los Alamos technologies.



Building an Innovative Value Chain

TECHNOLOGY OPPORTUNITY

Capability Identification

IP & Application Identification

NDA



Tech Snapshots

EXPLORE OPPORTUNITY

Customer Discovery /
Competitive Landscape

(MVP/Prototype)
Technology Validation &
Knowledge Transfer

DEVELOPING OPPORTUNITY

1st Customer Adoption/
Field Testing

Product Design/
First Product/
Scaling for Mfg.

NM LEEP/TRGR

TCF/ CRADA

LICENSE

SPP/SBIR/NMSBA



Why, when, and how to engage FCI



- **Engage with** researchers to solve technical challenges.
- **Coordinate** technology development & deployment objectives and support funding opportunity responses (e.g. SBIRs/STTR)



- **Interested** in learning how to commercialize technology or start a new company utilizing LANL technology.
- **Accelerate** technology maturation toward product development.



Learn how engage on the FCI website:
www.lanl.gov/feynmancenter



Technology Snapshots

Technology Snapshots is a web-based platform where businesses can learn about **Laboratory intellectual property (both inventions and software)** available for licensing, and Laboratory capabilities for potential collaborations **to assist industry in identifying technology solutions** to solve their pressing challenges or **mature their technology into a disruptive application**.



Promotes the **technology's market opportunity** and applications to potential industry partners, interested entrepreneurs and government sponsors.

<https://techsnapshot.lanl.gov>

Helps the **Laboratory evaluate the commercial applications** and **begin customer identification** to assess the intellectual property investment for further development of the technology.



Discover Opportunity

DisrupTECH

Discover technologies and capabilities as presented by the scientists and engineers behind them. Laboratory researchers give an investor-type presentation, identifying industry potential & market applications of their technologies, to local and regional investors and the community each summer.

DisrupTECH Offers



**Market
opportunity
identified**



**First look to
cutting edge
technology being
developed at LANL**



**Networking &
engagement**



Partnerships

<https://www.lanldisruptech.com>



Discover Opportunity



13

Staff & postdocs in current 2021 program

59

Staff & postdocs have participated to date

58

NM small businesses have received tech assistance from 11 participants

13

Postdocs have transitioned to the Postdoc Entrepreneur Fellowship

4

CRADAs executed

4

strategic sponsored projects with non- federal entities executed



A 6-month fellowship that trains 3-4 postdocs to discover pathways for their research and technology development that can transition into product and application solutions within a validated market opportunity. Fellows participate in New Mexico pitch events.

Successful Outcomes



Product Design



Business Models



Market Analysis



Financial Feasibility



Commercialization Roadmap



13

Postdocs have participated in Fellowship

\$13M

Follow-up funding for further tech development

4

Strategic Market Outlooks

1

CRADA in negotiation

1

Bacterial pathogen sensor prototype being locally produced for field trials

1

Covid-19 clinical trial with largest hospital in NM



Discover Opportunity

Moving our technology to a license

Intellectual property may be licensed for **commercial use**, **research applications**, and **U.S. government use**.

Identifying the **intellectual property** companies are looking for **to spur new product or enhance their product**

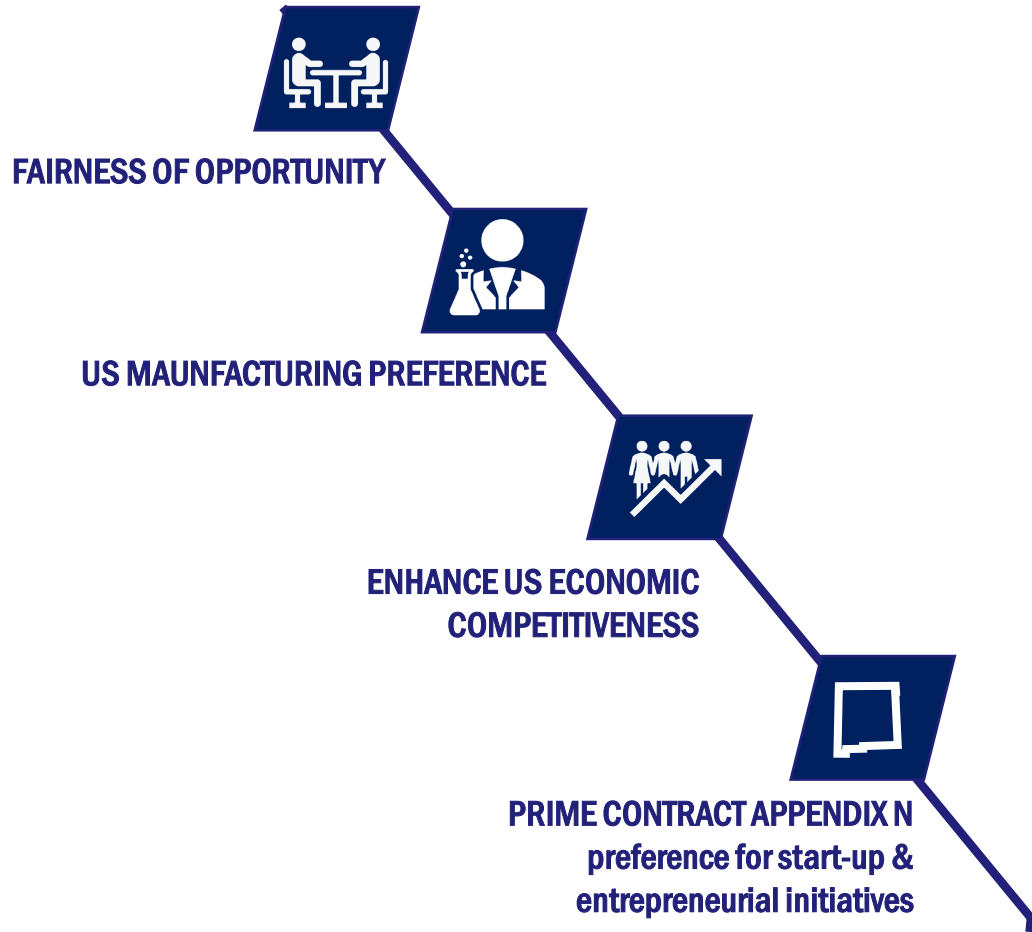
Work with company to determine **how are they going to use the IP** and how does it **fit into the industry value chain**

Create the **license agreement** and **negotiate the terms** for either exclusive or nonexclusive rights

If it is a commercial license, royalties come back to LANL and divided. **No work is performed** under a license agreement



DOE/NNSA LICENSING REQUIREMENTS



Types of Licenses

- **Nonexclusive Licenses:** allows the licensing of the IP to multiple Licensees.
- **Exclusive Licenses:** give the Licensee the sole right to the IP but are considered only when the business case is justified Government Use Acknowledgements and Notices provide written notification to U.S. Government agencies and contractors of their nonexclusive, nontransferable, paid-up, irrevocable right to use and manufacture the technology for U.S. Government purposes.
- **End User License Agreements (EULA):** a nonexclusive and nontransferable end user license to copyrights/software for Licensee's own research purposes. Fee bearing EULA for copyrighted software also include the rights to use, develop, and demonstrate.



What it takes to get a partnership

Partnership agreements **facilitate moving a technology to an application that has market value.** They enable LANL staff to **work directly with a partner to help with their product development and further development of the LANL technology.** All partnership agreement must **benefit both the Lab and industry** and align with Program Office, Line Management and Funding Sponsor requirements.

CRADA

A CRADA allows LANL and its partners to work together to optimize their resources, leverage technical expertise and capabilities, and generate intellectual property emerging from the collaboration.

SPP-NFE

Strategic Partnership Project–Non-Federal Entities (SPP-NFE) enables access to the Laboratory’s scientific capabilities, specialized instrumentation, and facilities for defined scopes of work.

SBIR/STTR

The SBIR and STTR programs provide an avenue for U.S. small businesses to engage in Federal Research/ Research & Development that has the potential for commercialization.

NDA

A Non-Disclosure Agreement (NDA) protects proprietary information provided by one party to another from further disclosure. This agreement is often used to cover initial interactions.



Technology Commercialization Fund (TCF)

The TCF is a nearly **\$30 million funding opportunity** that helps businesses move promising energy technologies from DOE's National Laboratories to the Market Place. Funding **matures promising energy technologies with the potential for high impact**. These funds are **matched with funds from private partners** to promote promising energy technologies for commercial purposes.

<https://www.energy.gov/technologytransitions/technology-commercialization-fund>

TCF projects require:

- 1) National Lab Technology Maturation
- 2) Strategic CRADA Approach to Increase Commercial Impact
- 3) Focused Industry Engagement to Identify High-Quality Partners





Start-up Studio

Unlock the benefits of technology through entrepreneurially minded people

A venture creation program that pairs lab technology with business and technical talent to conduct customer discovery and build new spin-offs.

Funded by federal agencies and corporate partners that connects entrepreneurs to technologies developed across DoD, NASA, DOE, DOI, DOT, top-tier universities, corporate R&D arms and other laboratories. National laboratory teams are funded by NNSA and DOE Office of Technology Transition.

<https://www.fedtech.io/fed-tech-startup-studio>



Develop Opportunity



SBIR and STTR are highly competitive programs that encourage small businesses to **explore their technological potential** and travel a pathway to potentially profitable technology commercialization. The small business submits competitive proposal to the agency that identifies a way to solve the outlined problem for SBIR/STTR awards.

Small businesses may request Los Alamos' involvement when submitting a proposal to the SBIR or STTR programs. By including Los Alamos as a subcontractor (SBIR) or a research institution (STTR), a small business may utilize Los Alamos' unique expertise and facilities when the requested capabilities are not available in the private sector.

To engage in an SBIR or STTR with Los Alamos a company should contact: sbir-sttr@lanl.gov



The New Mexico Small Business Assistance Program (NMSBA) provides New Mexico small businesses addressing technical challenges access to unique expertise & capabilities of Los Alamos & Sandia national labs as well as NMSU, NMT, UNM, NMMEP to:

- ▶ seek no cost assistance from lab staff to solve specific technical challenges;
- ▶ receive support in the form of lab hours up to \$40K in assistance for businesses in rural counties & \$20K in urban counties.

Benefits to NM Business



Experts solving your technical challenges



Testing and evaluation from a national laboratory makes a company more appealing to investors and grant makers



Builds relationships with technical experts for future collaboration



Increased understanding of product, market, & technology





Technology Readiness
INITIATIVE



TRGR addresses the gap of knowledge transfer and technology advancement when a business has a license to a laboratory technology or is engaged in a **research partnership**. It gives New Mexico Businesses the ability to leverage research and technology development from LANL & SNL to expedite product development:

- ▶ \$150,000 in assistance if the NM business qualifies
- ▶ Reach out to LANL or SNL for License or CRADA
- ▶ NM business submits a Statement of Intent to begin the application process

Benefits to NM Business



Work directly with laboratory experts to accelerate technologies past the invention stage into commercial products and services



Move technology closer to a commercial milestone



Builds relationships with technical experts for future collaboration



Increased understanding of product, market, & technology



2020 TRGR projects

UbQD
UBIQUITOUS QUANTUM DOTS

Raised: \$9M
Employees: 20

Testing safe, cost-effective, & reliable quantum dot technology to apply to next generation greenhouses & solar windows



Raised: \$4M
Employees: 15

Advancing electro-catalyst materials for hydrogen cells & electrolyzers free of precious metals

Develop Opportunity

New Mexico LEEP

the future. faster.



Lab Embedded Entrepreneur Program supports external innovators to advance their technology into a first product and build a company in New Mexico that addresses national security challenges in the areas of:



Advanced
Materials



AI & Advanced
Computing



Biotech-
nology



Space
Systems

Successful Outcomes



Accelerate emerging
technologies & products
crucial to national security
& global economic
competitiveness



Strengthen regional
commercial technology base
for NM research labs &
growing high tech community



Create new venues
for economic
growth, jobs &
entrepreneurs in
New Mexico



Supported
with EDA
grant, Triad
royalties, &
Appendix N
funds

Applications
are open &
close May 21

Up to \$400K to
jumpstart a
venture

World-class
national lab
collaboration

“Scale-up”
training
curriculum

Experienced
network of
mentors &
business
resources

First cohort
onboards
November
2021



<https://nmleep.com/>

Develop Opportunity

Questions?

<https://www.lanl.gov/projects/feynman-center/>

- **Discover**

- Technology Snapshots: <https://www.lanl.gov/projects/feynman-center/>
- DisrupTECH: <https://www.lanldisruptech.com>
- Entrepreneurial Post doc fellowship: <https://www.lanl.gov/projects/feynman-center/>

- **Access:**

- Business Development Team: feynman_center@lanl.gov
- Licenses and Partnerships:
 - Licenses: licensing@lanl.gov
 - CRADAs: fci-crada@lanl.gov
 - Other Partnerships: fci-nfe@lanl.gov ; nda@lanl.gov

- **Develop**

- Technology Commercialization Fund: <https://www.energy.gov/technologytransitions/technology-commercialization-fund>
- FedTech Studio: <https://www.fedtech.io/fed-tech-startup-studio>
- SBIR/STTR: sbir-sttr@lanl.gov
- NMSBA: <https://nmsbaprogram.org> or jlwise@lanl.gov; amandag@lanl.gov; john.rogers@lanl.gov
- TRGR: jlwise@lanl.gov; john.rogers@lanl.gov
- LEEP: <https://nmleep.com/>

